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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/938,378	08/24/2001	Ronaldus Maria Aarts	NL000467	1555

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EXAMINER	
CHANG, EDITH M	
ART UNIT	**PAPER NUMBER**
2637	

DATE MAILED: 10/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/938,378	AARTS, RONALDUS MARIA	
	Examiner	Art Unit	
	Edith M. Chang	2637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 August 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *3,5,7-9,12,15 and 16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *3,12 and 16* is/are allowed.

6)☒ Claim(s) *7, 9 and 15* is/are rejected.

7)☒ Claim(s) *5 and 8* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 February 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 1, 2005 has been entered.

Claim Objections

2. Claim 5 is objected to because of the following informalities:

Claim 5, line 2: "the noise signal" should be "the pseudo-random noise signal".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 9 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not

described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

In claim 9, line 15: "forming a difference signal, the difference signal being equal to the intermediate signal minus the reduced word-length signal" is not disclosed in the drawings. The intermediate signal Di (of FIG.1) is formed by adding a pseudo-random noise signal to the digital input signal as Mi in FIG.1, and the reduced word-length signal Me is formed by quantizing the intermediate signal. However, the difference signal Do is equal to the decoded signal Md minus the noise signal Ns, the "difference signal being equal to the intermediate signal minus the reduced word-length signal" does not described in the disclosure.

10/25/05

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Barrett (US patent 5,287,420) in view of Heddle (US patent 5,946,652).

To **claim 7**, in Fig.1, Barrett discloses a method for generating and recording a signal (as encoded signal) provide by the first compression 21 from a video input (as the *digital input signal*) on the storage device 22 (as the *recording medium;* column 2, lines

56-60) for a more sophisticated compression, the second step compression 24. The method comprises the steps of adding the pseudo-random numbers to the video input (column 2, lines 23-27) to form an intermediate signal (a signal comprising the sum of the information/data signal and the pseudo-random signal); quantizing the signal summed with the video input and the pseudo-random numbers (column 2, lines 27-29), wherein after adding the noise, the components of the video input in 8 bit (column 2, lines 17-18) are quantized to five bits (column 2, lines 26-28); and recording the output of the video digitizer (as the *reduced word-length signal;* column 2, lines 56-60), and the seed value (as the *noise parameters*) for the pseudo-random number is remembered in the storage device 22 (column 2, lines 65-68), however, does not explicitly specify the non-linear device parameters.

Heddle teaches a method non-linearly quantizing the data according to anon-linear function (column 3, lines 63-64) in FIG.7, wherein the data and word-length information indicating the number of quantizing levels (as the *non-linear device parameters*) are received (column 3, lines 64-66). As Barrett quantizing the digital video signal, at the time of the invention was made, it would have been obvious to one of ordinary skill in the art to have the word-length information indicating the number of quantizing levels with the data taught by Heddle in the output of the Barrett's video digitizer in order to have the number of quantizing levels changed dynamically (column 3, lines 46-50) for the purpose of getting optimum results for all varied non-linear parameters of the quantizing.

5. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (US 5,901,178) in view of Barrett (US patent 5,287,420).

To **claim 15**, in FIG.6, Lee et al. discloses a decoder receiving the OUTPUT STREAM W/ PC-HDT 462 (as the *encoded signal*) provided by the encoder of FIG.5 for audio or video data, auxiliary data (column 13, lines 63-67), etc. The decoder comprises: a UNPACK + DEMUX 604 (as *means for extracting*) receiving the compressed stream provided by the encoder (OUTPUT STREAM W/ PC-HDT 462 FIG.5) on 602 (column 15, lines 33-36) and extracting the compressed audio or video signal (as the *reduced word-length signal*) provided by the quantizer Q 454 of FIG.5, the COMPRESSION PARAMETERS (as the *non-linear parameters*, 407 FIG.5) including the BIT ALLOCATION (459 FIG.5 & 606 FIG.6) and the N demultiplexed data spreaded with the pseudo-random noise PN noise; an inverse quantizer Q^{-1} 610 (as the *quantization element*) receiving the BIT ALLOCATION signal for processing the signal on 608 to form a decoded signal on 612 ; the SUB-BAND FILER BANK 640 (as the *noise source*) receiving the PN providing the pseudo-random sequences SP_0 to SP_{N-1}; and demodulators 620, 622, 624 and 626 (column 15, lines 59-61) and integrators 650, 652, 654 and 656 (column 15, lines 64-67) as a *subtraction element* to dispreading (subtracting the noise from) the decoded signal, however, does not specify the noise parameter in the encoded signal.

Barrett teaches adding the pseudo-random numbers to the video input (column 2, lines 23-27 '420) and the seed value (as the *noise parameters*) for the pseudo-random number is remembered in the storage device 22 (column 2, lines 65-68 '420). As Lee et al. storing the different PN sequences in a lookup table (storage; column 15,

lines 60-63 '178) and encoding data/information on different channels (FIG.3b and 401, 407 FIG.5 '178), at the time of the invention was made, it would have been obvious to one of ordinary skill in the art to have the seed value for the PN with the data stored taught by Barrett in Lee et al.'s encoder to add the noise parameters recorded/stored for the decoder to provide different PN sequences (SP_0 to SP_{N-1}) via providing the noise parameters to the noise source. The encoded noise parameters not only simplify the PN sequences generating but also provide background processing such as compression to save the real-time resources (column 1, lines 55-60 '420).

Allowable Subject Matter

6. Claims 3, 12, and 16 are allowed.

7. Claim 5 would be allowable if rewritten to overcome the objection set forth in this Office action

8. Claim 8 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record fails to teach or suggest, alone or in a combination, among other things, at least a signal processing apparatus for reducing the number of bits of a digital input signal and its method as a whole, the combination of elements and features, which includes the first transfer function for quantizing as a tanh function = c1

tanh (c2 Di + c3); and the reduced word length signal recorded on a first channel and the non-linear parameters and the noise parameters recorded on a second channel of a compact disc.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edith M. Chang whose telephone number is 571-272-3041. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay K. Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Edith Chang
October 19, 2005

KHAI TRAN
PRIMARY EXAMINER